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Expert Opinion

Environmental changes are caused by inequitable and unsustainable production and consumption patterns that aggravate poverty in many regions of the world. We believe that urgent actions are needed to address these fundamental problems and reverse the trends. Stabilization of human population, adoption of environmentally sound industrial and agricultural technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature.

The activities pursued by colleges can create a variety of adverse environmental impacts. Colleges and Universities have broad impact on the world around them, both negative and positive. But colleges are also in the unique position as educational institutions to be leaders in pursuing environmentally sustainable solutions.

Green Audit can be defined as systematic identification, quantification, recording, reporting & analysis of components of environmental diversity. The term "Green" means eco-friendly or not damaging the environment. The green audit practically involves energy conservation, use of renewable sources, rain water harvesting, efforts of carbon neutrality, plantation, hazardous waste management & E-waste management.

This document presents a proposal for both the process and the content of an environmental assessment of Yashwantrao Chavhan Warana Mahavidyalaya /College (YCWM). The process involves the formation and deliberation of assessment teams, each consisting of a group of knowledgeable stakeholders within the campus community. This report serves to highlight YCWM's many accomplishments, and to make recommendations for improving the College's environmental sustainability.

The Environmental or Green audit report is prepared by Dr. Vilas Patil and his faculty associates at YCWM, Warananagar with support from Principal of YCWM & various stakeholders of Warana Shikshan Mandal, Warananagar. I would like to extend my special appreciation for the amazing work done by Dr. Vilas Patil on the Green Audit project. Seeing their diligence, self

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"LET'S GO GREEN TOGETHER....."

motivation and focus has been a source of motivation for the rest of the team, as we see a positive approach in the college.

Besides that, this assignment was done by Dr. Vilas Patil and his team, is not just about providing opportunities for student learning and growth, it was about an obligation to exercise leadership in promoting environmental sustainability, environmental awareness and commitment that leads to action, that leads to transformation and change. They have studied and presented their efforts in this report. This is not only for the institution itself, but just as importantly to be a role model institution for others to emulate and bring the environmental concerns and related mitigating measures to centre stage of Green campus life which extend locally, regionally and beyond.

The overall goals of this project are four-fold:

- To introduce students to the tools of investigation and the process of quantification of resource use and sustainability using the YCWM Campus as a study site
- To analyze various resource use patterns and levels of resource use on the Campus
- To establish a baseline to assess future sustainability work
- To identify and catalog existing efforts to make the College a more environmentally sustainable institution of higher learning.

To accomplish these four objectives, they have to analyze resource use and the campus environmental impact through a series of environmental or sustainability lenses. YCWM College needed to conduct an audit, in order to judge how they are using their resources and if they can use them more efficiently.

YCWM is the multi faculty college (Arts, Commerce & Science), and expresses its commitment to sustainability in many ways. It has taken a number of positive steps to reduce its environmental impact. But many areas remain in which substantial improvements can be made. The environmental aspect has studied the practices of the college regarding solid waste management, water and wastewater management, energy usage and pollution and Green campus maintenance. It may also examine the ecofriendly initiatives of the college.

It is observed that –

- Establishing an environmental policy statement indicating the commitment of the Institute towards improving its environmental performance.
- Evaluation of compliance with respect to applicable legal requirement.
- Increase visible communication on environmental issues.
- Effective use of notice boards and signs.

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- Plantation inside the college premises is found well maintained.
- The college undertakes various activities through N.C.C., N.S.S. like beautification, water and power management
- Baseline data generation for Air, water, energy (in all forms electricity, fuel) and waste.
- Data management and analysis of trends with respect to energy consumption, water consumption, waste water generation, solid waste generation (stream wise)
- Program on rain water harvesting has been taken up, the project is under progress.
- Establishing improvement objectives for reducing energy consumption, water consumption and fuel consumption.
- Identification of improvement initiatives, prioritization and rollout of suitable projects
- Ensuring effective implementation of such projects to attain set environmental goals

Recommendations:

- A mechanism needs to be developed to identify the various environmental aspects & the impact arising from the activities of the institute. This will enable the college to map its various resources usage and waste streams, in accordance with the same control measures could be developed and implemented.
- College needs to develop a monitoring & measurement program for resources (water, electricity, LPG & fuel)
- Consumption efficiency by (a) evaluating current consumptions, (b) setting time based reduction targets (c) action plan to achieve the same with defined responsibilities (d) periodic review of effectiveness of actions implemented.
- Suitable communication by means of banner, posters, one point lesson can be displayed at vantage location to create awareness among all stakeholders.
- Student's community may be involved in small groups for different environmental improvement projects within the college as well outside the college boundary.
- The cleanliness of the common room for students and some of the classrooms found inadequate
- Participation and involvement of the students can be improved by college event on pertinent days such as world environment day, earth day, World Water day etc.
- Waste Water reuse and recycle opportunities have not been explored
- The college may take initiative for community plantation programme by involving students to offset the GHG emission.
- College needs to develop an emergency preparedness plan, Signage indication emergency evacuation layouts routes and assembly area are not implemented.
- Stakeholder awareness on emergency preparedness needs to be improved.
- Infrastructure for firefighting needs to be reviewed.
- First aid room is not maintained in proper condition.

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Waste Generation & Management

- E-waste and glass wastes generated from office, IT and Science labs are handled through authorized service provider
- The Chemistry, Botany and Zoology laboratories are using a number of hazardous chemicals (e.g. – mercuric chloride, formaldehyde, butyl alcohol etc.). The Department needs to identify all the hazardous chemicals and necessary communication dos and don'ts to minimize environmental and health impact by the user from the MSDS.
- Presently solid waste disposal process is done in unorganized basis. The collection of waste is done from the campus on as and when required basis and the solid waste disposed through only by recognized technologies like vermicomposting, decomposition etc
- The college has not yet taken any initiative for carbon accounting
- Plantation program has been initiated inside the campus.
- Adequate awareness program amongst the students and other stakeholders (faculty, other staffs, service providers etc.) needs to be organized for proper solid waste disposal.
- The college may start proper communication with the local body for regular collection of solid waste from the campus. Various wastages like used tube lights, plastic bottles were observed on ground behind the common room.
- College needs to prepare & implement a waste handling & disposal procedure with clear identification for different type of wastes. Disposal area for different types of waste needs to be earmarked.
- The college does not have a waste collection system with proper segregation. The college may introduce waste collection bins with different colour code for biodegradable and non-biodegradable waste for source segregation with adequate signage.

Water Conservation

- The college has not yet introduced any water consumption monitoring within the college campus. The authority may install flow meter at the intake point and generate water consumption pattern.
- The detailed layout of water dispensing taps is not available presently.
- The college may compare the water consumption from the measured data with WHO guideline to chalk out water conservation measures for continual improvement.
- College needs to evaluate its water consumption efficiency by suitable monitoring of (a) input from IRRIGATION DEPARTMENT (b) Quantity of water supplemented by rain water harvesting which is under implementation (c) operational control to reduce wastage in toilets & canteens, (d) identification & stoppage of leakages in pipelines.

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- Float valve operated auto shut off switch may be installed for pump sets used for overhead tank filling
- Washing waste water from canteen & kitchens needs to be suitably controlled to prevent residual food waste contaminating the storm water drains.
- The college doesn't have waste water treatment unit for the waste water generation from different chemical laboratories for the proper treatment, Effluent Treatment Plant (ETP) may be installed.
- The college has taken initiative for rain water harvesting. Presently rainwater from college roof is being collected in college well and used for gardening. Study on measurement of water quantity from the rain water harvesting should be required.

Energy Conservation & Efforts on Carbon Neutrality:

- Assessment of electrical load calculation is not yet done by the college.
- The college may assess the equipment rating to have the baseline data for assessing energy consumption pattern.
- Maximum numbers of electrical fans are found of older generation & non energy efficient. The college may develop a phase out plan of the same by replacing with new energy efficient fans.
- High energy consuming Incandescent lights and fluorescent lights are found in use. The college may plan for long term phase out plan of the same with less energy consuming LED or CFL lights.
- Many classrooms are found unoccupied while fans & lights are operational. Automation or time control mechanism may be explored.
- The communication process for awareness in relation to energy conservation found inadequate.
- The college is having considerable area in the roof top, a cost benefit analysis may be done for installation of solar panel to reduce carbon footprint. College needs to explore the usage of renewable energy sources like solar panels for lighting & water heating, Electricity generation from Wind mills etc.
- The college may account the carbon foot print from per capita energy consumption and other means of GHG emission. Based on the baseline data the college may set target and program to reduce carbon foot print.

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Hope that the results presented in this report will serve as a guide for educating the college community on the existing environment related practices and resource usage at the college as well as spawn new initiatives and innovative practices. However, there is scope for further improvement, particularly in relation to waste minimisation and energy monitoring. By implementing a basic environmental management system, current good practice could be formalized and a framework could be set up for monitoring, implementation of action plans and continual improvement.

Thanks and Regards.

Yours Sincerely,

Dr. Prashant A. Banne
(CEO & Managing Director)



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